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ABSTRACT

The task group report presented in this publication is one of a series prepared by eminent psychologists who have served as consultants in the U.S.O.E.-sponsored grant study to conduct a Critical Appraisal of the Personality-Emotions-Motivation-Domain. In order to achieve the goal of identifying important problems and areas for new research and methodological issues related to them, an approach was followed in which leading investigators in specialized areas were enlisted as members of task groups and asked to reflect on their current knowledge of ongoing research and to identify the research needs in their respective area. The articles in this report are: (1) Interpersonal Behavior Processes: An Overview (Byrne); (2) Courtship, Marriage, and Other Long-Time Interpersonal Relationships (Levinger); (3) Interpersonal Aggression (Baron); (4) Behavioral Aspects of Interpersonal Behavior (Mehrabian); and (5) Environmental Effects on Interpersonal Behavior (Griffith). (Author)

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RECORD RESEARCH ON INTERPERSONAL BEHAVIOR PROCESSES
A SPECIAL REPORT OF THE USOE-SPONSORED GRANT STUDY: CRITICAL APPRAISAL OF RESEARCH IN THE PERSONALITY-EMOTIONS-MOTIVATION DOMAIN

Prepared by Task Group 6000 -
Interpersonal Behavior Processes
Donn Byrne, Chairman, George Levinger
Robert A. Baron, Albert Mehrabian,
and William Griffitt

Under the Editorship of S. B. Sells and R. G. Demaree
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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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FOREWORD

The task group report presented in the following pages is one of a series prepared by eminent psychologists who have served as consultants in the U. S. Office of Education sponsored grant study to conduct a Critical Appraisal of the Personality-Emotions-Motivation Domain. The study was planned with the advice of an advisory committee including Professors Raymond B. Cattell and J. McV. Hunt (University of Illinois), Donald W. MacKinnon (University of California, Berkeley), Warren T. Norman (University of Michigan), and Dr. Robert H. Beezer (USOE) and follows a topical outline included as an appendix to the present report. In order to achieve the goal of identifying important problems and areas for new research and methodological issues related to them, an approach was followed in which leading investigators in specialized areas were enlisted as members of task groups and asked to reflect on their current knowledge of ongoing research and to identify the research needs in their respective areas. The general plan is to publish these reports as a collection with integration contributed by the editors. It is hoped that these reports will prove to be valuable to research scientists and administrators.

S. B. Sells, Ph.D.
Robert G. Demaree, Ph.D.
Responsible Investigators

CONTENTS

6000 -	Interpersonal Behavior Processes: An Overview	Donn Byrne
6100 -	Courtship, Marriage, and Other Long-Term Interpersonal Relationships	George Levinger
6200 -	Interpersonal Aggression	Robert A. Baron
6300 -	Behavioral Aspects of Interpersonal Behavior	Albert Mehrabian
6400 -	Environmental Effects on Interpersonal Behavior	William Griffitt

Appendix: Outline for PEM Study Adopted for Planning Purposes

6000 - Interpersonal Behavior Processes: An Overview

Donn Byrne
Purdue University

The affective responses elicited by other human beings constitute a pervading influence in man's affairs. Our moments of greatest pleasure and most intense distress are occasioned by interpersonal interactions. The spectrum ranges from the simplest joys and pettiest annoyances of family and friends to the most utopian visions of a harmonious international community and the most awesome possibilities of the destruction of our species. The study of interpersonal behavior, then, may be seen in its broadest sense as the attempt to achieve a basic understanding of interpersonal pleasure and pain, of love and hate.

On a number of grounds, it can be argued that the lawful regularities underlying interpersonal relationships are unlikely to be formulated in the course of a direct and well intentioned attack on important practical problems. Rather, fundamental progress depends on creative and imaginative basic research within scientific paradigms. Personality and social psychology will benefit from an increasing adherence to the demands of "normal science" as defined by Kuhn (1962).

Commitment to basic research within a paradigm does not preclude an interest in the problems of the outside world on the part of the experimenter, and it does not preclude the relevance of this research to the problems of the outside world. On the contrary, the history of science suggests that basic research constitutes one of the more effective ways of extending the

knowledge base and of extending our conceptual frontiers and, incidentally, of solving real life problems. Application is not the sole justification for basic research nor is it an inevitable outcome of that research. The relationship between the underlying bedrock of basic research and the useful outcroppings of applied research and application requires the continual attention of social scientists.

There are two primary ways in which application may advance. A problem may be identified and applicable solutions sought, or reliable knowledge may be identified and applicable problems sought. Physics-engineering is able to advance with the former procedure while biomedicine is sufficiently undeveloped to require major reliance on the latter. If one can assume that behavioral science is closer to biomedicine in its developmental level than it is to physics-engineering, it clearly follows that our best strategy is the dedicated encouragement of basic research and the equally dedicated encouragement of any attempts to apply the resultant knowledge to whatever problems are appropriate.

Though it is always difficult to evaluate one's own area of scientific interest with impartiality and objectivity, it will be asserted here that work on interpersonal behavior processes has reached a critical takeoff point both with respect to basic research and application. In addition to the material presented by Professors Baron, Griffitt, Levinger, and Mehrabian, there is increasing evidence that we are on the brink of a very exciting period with respect to interpersonal research. In the past decade,

there has been an unprecedented avalanche of empirical papers, chapter and monograph summations, and books outlining the findings, the theories, and the rapid development of our knowledge of interpersonal interactions. With interpersonal attraction, for example, even a partial listing of the more integrative productions attests to the expansion of the field: Aronson, 1970; Berscheid & Walster, 1969; Byrne, 1969, in press; Clore & Byrne, 1971; Jones, 1964; Lindzey & Byrne, 1968; Lott & Lott, 1968; Murstein, in press; Newcomb, 1961, 1968; Staats, 1968; Taylor, 1970. It should be noted that, for the first time, the Annual Review of Psychology is devoting a chapter to a review of attraction research (Byrne & Griffitt, in preparation).

Much of the work just cited deals with laboratory data and with the building of theories relative to those data. It can be fairly said that current theories of attraction have been more fully articulated, are more encompassing, and can be tied more firmly to a solid data base than has ever been true previously. Given the enormous areas of ignorance still to be pursued, the foregoing statement need not be taken as undue grandiosity on the part of attraction theorists.

In addition, research on attraction has develcped to the point where applied implications are increasingly obvious and increasingly the subject of research interest. Examples include voting behavior (Byrne, Bond, & Diamond, 1969), marital satisfaction (Levinger & Breedlove, 1966), sexual compatibility (Byrne, Lamberth, & Mitchell, in preparation), computer dating (Byrne,

Ervin, & Lamberth, 1970), performance on a physical task (Meadow, 1971), teacher selection practices (Merritt, 1970), personnel selection (Griffitt & Jackson, 1970), decisions on loan applications (Golightly, Huffman, & Byrne, in preparation), the decisions of jurors (Griffitt & Jackson, in press; Mahaffey, 1969; Mitchell, 1970), attitude change (Corrozi & Rosnow, 1968), the effectiveness of salesmen (Brock, 1965; Evans, 1963), attempts to increase interpersonal tolerance (Byrne & Ervin, 1969; Hodges, 1970), educational effectiveness (Lott & Lott, 1966), and the success of psychotherapy (Goldstein, in press). Interpersonal attraction seems to be ubiquitous in its implications for a myriad of interpersonal situations.

Though specific areas of research need will be emphasized in the following four papers, a somewhat different suggestion will be made here. In 1960, one would have been highly unlikely to suggest that research on interpersonal attraction would lead us to the study of judicial decisions, personnel selection, educational effectiveness, or, in basic research, to the study of classical conditioning (Byrne & Clore, 1970), sequential learning theory (Lamberth, 1970), or mood manipulation (Gouaux, 1970). Because of the unpredictability of the specific directions in which any scientific enterprise is likely to lead, this author would like to encourage a degree of flexibility with respect to considering new research directions. It is suggested, therefore, that basic research and applied research on interpersonal processes should be energetically pursued without too strenuous an attempt to delimit the directions this research must take. The prospects for such research are a source of challenge, excitement, and promise.

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6100 - Courtship, Marriage, and Other Long-Term Interpersonal Relationships

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Some Suggestions Regarding "Needed Research"

In some areas of social science, there appears to be a body of well-known facts and established principles; the problem is mainly to fill gaps or to extend the perimeter of what is known. Regarding the present topic, however, it is difficult to identify such core knowledge. For one thing, the area of "long-term relationships" is very broad. For another, our knowledge about the narrower topic of courtship and marriage is primarily normative and culture-bound; it is exceedingly difficult to estimate the long-term effects of even minor changes in relational arrangements. In suggesting areas for "needed research" in this limited space, I here can merely summarize my own inclinations.

"Mateship"

Let me coin a general term to refer to primarily dyadic relationships that connote partnership, long-term obligation and co-orientation. The term "mateship" refers not merely to opposite-sex relations, but also to same-sex pairings including friendship, roommateship, or occupational partnership.

Pertinent, then, are processes of mate selection and mate retention. Problems of theory and research would concern themselves with the formation, the maintenance, and the dissolution of mateships.

General Issues. The existence of mateships has important implications for personal satisfaction and stability, as well as for societal integration versus disintegration. In today's society, there are trends to delegitimize the "long-term" nature of mateships. It appears that many young people feel that marriage contracts and other binding long-term obligations are passé. Such disintegrative trends in our present society would have important implications for child rearing and family life (e.g.,Bronfenbrenner, 1970). One research objective might be to study the actual pervasiveness of such trends, to survey the expectations about marriage, courtship, and friendship that are in fact held. Another objective would be to investigate varying determinants of interpersonal attachment. These determinants will undoubtedly differ depending on (a) the nature of the interpersonal pairing, (b) its stage of development over time, and (c) the cultural subgroup of its members.

Formation of mateships. Good evidence exists that mate selection is facilitated by such factors as spatial propinquity, demographic and background similarity, and attitude similarity (cf. Berelson & Steiner, 1964; Byrne, 1969; Secord & Backman, 1961). Less clear is what the particular domain of similarity implies: What sorts of similarity are most instrumental for the formation of what sorts of mateships? What is the mediating effect of social networks and other external forces?

"Complementarity" in the partners' needs and roles is even less well understood (Barry, 1970; Kerckhoff & Davis, 1962; Levinger, 1964a; Levinger, Senn, & Jorgensen, 1970; Marlowe & Gergen, 1969;

Tharp, 1963, 1964; Winch, 1967). If we wish to enlarge our understanding of this complex area, we may need more research on specific ongoing relationships; (e.g., Lipetz et al., 1970); in a study of married couples, Lipetz et al. reported that certain aspects of marriage-specific need complementarity was positively related to marital adjustment, but was uncorrelated with the partners' "general" interpersonal need complementarity.

Maintenance. Group maintenance is a crucial problem of ongoing groups (Bales, 1951; Thibaut & Kelley, 1959), but the nature of critical maintenance behaviors in ongoing dyads is poorly specified. It would be useful to document "normal" developmental trends in American courtships and marriages today, including the change in young people's schemata and expectations (cf. DeSoto & Kuethe, 1959; Kuethe, 1962). Longitudinal studies such as the one now directed by Robert Ryder at NIH (cf. Goodrich, Ryder, & Raush, 1968) will be of importance. Barry (1970), Blood and Wolfe (1960), Levinger (1965), and Tharp (1963) have reviewed correlates of satisfactory marriage relationships, but there are few data on the particular sorts of maintenance behaviors employed in stable marriages. It would be helpful to obtain clearer data on patterns of problem solving, communication, and social exchange. Regarding the latter, Foa has recently developed a promising conceptualization of resource exchange (Foa & Foa, 1971).

There is a similar lack of knowledge about ongoing friendships and other same-sex partnerships. Although something is known about processes of self-disclosure (e.g., Jourard, 1964; Taylor, 1968) and certain aspects of friendship (Wright, 1969), it is

noteworthy that few studies of interpersonal attraction explicitly differentiate between superficial and deeper attachments.

Dissolution. Some sorts of mateships are predictably self-dissolving (e.g., college roommateships). In contrast, many partnerships are considered quasi-permanent: the relationships between spouses, or between friends and colleagues. The dissolution of these latter relationships is often marked with pain, and perhaps with strain upon the partners' wider social nets. Bernard (1964), Levinger (1965), and Scanzoni (1965) have reviewed some determinants of marital dissolution; Goode (1956) has studied the consequences of divorce upon ex-wives. There has also been good demographic research on trends in divorce and family disruption (Carter & Plateris, 1963; Jacogsen, 1959). However, there is little recent good empirical research on the interpersonal dynamics that precede or follow the dissolution of mateships.

Methods of Approach

The study of ongoing relationships cannot readily be accomplished within the confines of the typical social psychological laboratory experiment, although some investigators have done interesting work by bringing existing pairs into the lab and comparing the interactions of contrasting groups (e.g., Goodrich & Boomer, 1963; Levinger, 1964b; Katz, Cohen, & Castiglione, 1963; Ravich, 1969; Schoenberger & Wood, 1969). Alternative methods would include the use of experimental selection (e.g., studies of computer-matched couples, or of college roommates selected by some systematic device) or the longitudinal study.

Three other approaches merit consideration for research support: (1) large-scale surveys of relational trends, (2) simulation models of long-term interaction sequences, and (3) conceptual bridging.

Surveys. At the individual level, there have been two interesting large-scale surveys of individual well-being: Americans View their Mental Health (Gurin, Veroff, & Feld, 1960), and Reports on Happiness (Bradburn & Caplovitz, 1965). A careful probability survey of Detroit area marriages was done by Blood and Wolfe (1960), and a rather unsystematic account of upper middle-class marriages in Ohio was reported by Cuber and Haroff (1965). It would be useful to survey the current state of mateships on a national basis, both in order to explore relational well-being and to examine cognitive schemata held by respondents currently (DeSoto & Kuethe, 1969). What are current and changing expectations about such traditional relationships as marriage, friendship, and so forth?

What can be learned about such new mating phenomena as long-term unmarried "living together" or "group marriage"? How do such attachments differ from more traditional ones? What are their comparative probabilities of dissolution? What are the consequences of such attachments for the individual participants?

Models. The study of existing mateships faces many difficulties--including expense, lack of control or standardization, and invasion of privacy. A feasible alternative is to build abstract models of relationships to set forth assumptions and hypotheses and to test them in a preliminary fashion. Such an

approach would, at the minimum, permit the check of the internal logic of one's assumptions and predictions. Simple models for the study of long-term interaction sequences have been suggested by Bernard (1964), Rapoport and Chammah (1965), Raush (1969), Rosenberg (1968), Wolf (1970). Computer simulations have been suggested by other authors (cf. Abelson, 1968; Loehlin, 1965). Modeling--an accepted technique in other scientific areas--deserves a fair test in the present instance.

Conceptual bridge-building. The study of ongoing relationships has suffered from conceptual compartmentalization. For example, students of marriage have ignored research on courtship, not to speak of studies of friendship or wider research on group dynamics. Existing attempts at wider conceptualization (e.g., Hill, 1966; Nye & Berardo, 1966) have not as yet been very successful. Perhaps the best way to stimulate progress in the wider area would be to push for the better integration of already existing knowledge via tough-minded propositional inventories. Such critical integrations would allow us to assess what knowledge is reasonably solid, and what findings are surprising or suspect. We could thus avoid unneeded studies and promote the concentration of effort on the truly critical problems which have remained diffuse and difficult to identify.

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6200 - Interpersonal Aggression

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Recent years have witnessed an alarming rise in the incidence of crimes of violence, several tragic political assassinations, and the occurrence of a large number of civil disorders both on university campuses and in many of the nation's cities. Perhaps as a result of these trends and events, the volume of social-psychological research on the topic of human aggression has shown a corresponding rapid increase. The present report will outline several of the most significant findings of this recent work, suggest additional research which is needed to clarify and extend these results, and call attention to several unresolved methodological problems which continue to face investigators in this area.

Recent Findings and Suggestions for Further Research

For many years the view that frustration is the most important single determinant of aggressive behavior has won widespread acceptance among psychologists (see, e.g., Berkowitz, 1962, 1969; Dollard, et al., 1939). However, the results of several recent experiments have called this assumption into serious question. Specifically, the findings of these studies suggest that in many instances frustration may serve as only a relatively weak instigation to overt aggression (Buss, 1963, 1966) and that attack (either physical or verbal) may often be a more effective elicitor of such behavior (e.g., Geen, 1968). In view of these findings,

further research concerned with this basic issue appears to be necessary. In particular, experiments in which the aggression-eliciting properties of various types of frustration (blocking of ongoing behavior, the omission of an anticipated reinforcer) are investigated, as well as studies in which the magnitude of frustration and attack are varied in a systematic manner, should be performed. The results of such research will provide important information concerning those environmental conditions most likely to provoke one individual to attack and seek to harm another.

The Influence of Aggressive Models

A large number of recent experiments (e.g., Bandura, Ross & Ross, 1961, 1963a, b; Epstein, 1966; Hartmann, 1969; Wheeler & Smith, 1967) have indicated that exposure to the behavior of live or filmed aggressive models is highly effective in eliciting similar acts among both child and adult observers. Indeed, such effects appear to be so powerful that they occur even under conditions where observers express strong disapproval of the model's actions (Bandura, Ross, & Ross, 1963b), indicate a low level of attraction toward this individual (Baron & Kepner, 1970), or are threatened with immediate and severe retaliation from the victim of their attacks (Baron, in press). Thus, the aggression-eliciting effects of aggressive models appear to be well documented. Unfortunately, however, little attention has been directed to the investigation of means for counteracting the influence of such individuals. In view of the potential role of aggressive models in the elicitation of tragic instances of collective violence

(see Lieberson & Silverman, 1965), and the prevalence of aggressive models in the mass media (Larsen, 1968), the present lack of information concerning this topic is somewhat disconcerting. Similarly, there is a corresponding lack of evidence concerning the possible aggression-inhibiting influence of nonaggressive models. In view of the potential practical applications of such information to the development of an effective program for the control of collective violence, research concerned with both of these topics should be undertaken in the immediate future.

Stimulus Factors in Aggression

In several recent discussions, Berkowitz (1962, 1964, 1965) has suggested that frustration (and, presumably, other instigations to aggression) create only a "readiness" for such behavior, and that the occurrence of overt aggressive acts depends upon the presence of external stimuli capable of eliciting such behavior (i.e., aggressive cues). In an integrated series of experiments, Berkowitz and his associates (e.g., Berkowitz, 1965; Berkowitz & Geen, 1966, 1967; Geen & Berkowitz, 1966; Geen & O'Neal, 1969) have obtained evidence in favor of this view. More specifically, the results of these experiments have indicated that the association of an individual with previously witnessed aggressive scenes may serve to increase the intensity of subsequent attacks against him. In addition, Berkowitz and LePage (1967) have found that objects (in this case weapons) as well as individuals may acquire such aggression-eliciting properties, and so tend to facilitate

overt aggression, like other social behaviors, is under the control of external stimuli as well as emotional states and cognitive factors. However, additional information concerning such issues as: (1) the manner in which persons or objects acquire aggressive cue value (2) the extent to which such properties generalize across situations (3) the ways in which such properties may be reduced or eliminated, should also be acquired. Research concerned with such issues may provide important information on the conditions under which aggressive behavior is most likely to occur, and the type of individuals most likely to be attacked.

The Catharsis of Aggression

The suggestion that dangerous acts of interpersonal violence may be avoided by allowing individuals to participate in aggressive play, active sports, or other so-called "cathartic" activities has won widespread acceptance among psychologists and laymen alike (e.g., Berkowitz, 1962; Buss, 1961; Feshbach, 1964). Unfortunately, however, recent evidence suggests that participation in such activities may actually tend to facilitate rather than inhibit subsequent physical aggesssion (e.g., Mallick & McCandless, 1966; DeCharms & Wilkins, 1963). Furthermore, although it appears that reductions in physiological arousal following instigation to aggression may be produced by various activities (e.g., Hokanson & Burgess, 1962a, b; Hokanson, Willers & Koropsak, 1968; Stone & Hokanson, 1969), there is no clear evidence that such reductions in "tension" are consistently accompanied by reductions in the frequency or intensity of overt aggressive acts. In view of the

widespread acceptance of the notion of catharsis, research designed to examine this relationship appears to have great practical as well as theoretical significance.

Other Issues

Among the other interesting questions raised by the findings of recent research and seemingly worthy of further investigation are the following:

1. What are the effects on subsequent aggression of signs of pain and suffering on the part of the victim? (See, e.g., Baron, in press; Buss, 1966a, b; Geen, 1970; Tilker, 1970.)

2. What are the effects on aggressive behavior of such environmental conditions as temperature and crowding? (See Griffitt, 1970.)

3. Does punishment or threat of punishment actually serve as an effective means of inhibiting aggression? (See Baron, in press.)

Methodological Problems in the Laboratory Investigation of Aggression

A large proportion of recent laboratory research on aggression has employed some variation of a set of procedures originally devised by Buss (1961). Very briefly, these procedures involve a situation in which subjects punish errors on a learning task by another person by means of electric shock. In reality, the victim is a confederate who makes a pre-arranged series of errors, and who never actually receives any shocks. Subjects are administered

sample shocks from the experimental apparatus ("aggression machine") in order to convence them that it does in fact deliver noxious stimuli to the victim. Although these procedures afford many advantages (e.g., they permit the investigation of physical aggression in the laboratory with no danger of actual harm to any participants), their use involves several methodological problems which have as yet received little attention.

First, despite the widespread adoption of Buss's procedures, there has been no systematic investigation of several aspects of this technique which may exert important effects upon the dependent measures generally obtained (i.e., the intensity and duration of shocks delivered to the victim). Specifically, such factors as characteristics of the sample shocks to subjects (e.g., intensity, duration, number), the rate at which the victim appears to master the experimental materials, and the particular learning task he is asked to perform, have generally been ignored by investigators employing the Buss procedure. In view of the fact that these factors may interact in an unpredictable manner with the independent variables of interest in any particular experiment, research designed to investigate their influence appears to be essential.

Second, little attention has been directed to the question of whether the behavior shown by subjects in this situation is in any sense analogous to aggressive behavior outside the laboratory. Although the demonstration of such a relationship represents a very complex and difficult task, useful information regarding this issue may be readily obtained by comparing the behavior,

in this situation, of subjects drawn from various populations known to evidence different levels of overt aggressive behavior in naturalistic settings (e.g., college students vs. convicted criminals or ghetto dwellers). Some preliminary information of this type has already been obtained (Hartmann, 1969). However, further research is necessary in order to establish the extent to which the findings of laboratory experiments on aggression can be generalized to naturalistic social situations.

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6300 - Behavioral Aspects of Interpersonal Behavior

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Interpersonal behavior can be studied as a function of the following factors: (a) Personality variables which also subsume cognitive variables, such as those measured by Jackson (1967); (b) transitory states which include feelings and physiological states; (c) attributes of other persons who are present, such as their personality, social status, or similarity to the actor; (d) task variables such as subjects being requested to cooperate or compete, or to be ingratiating to someone else (Jones, 1964); and, (e) other experimental conditions, such as prolonged isolation of two or more subjects (Altman and Haythorn, 1967).

One of the necessary steps for implementing this broad framework is the definition and categorization of interpersonal behavior. A variety of behavioral cues have been identified and reliably scored (e.g., Bales, 1950; Duncan, 1969; Ekman and Friesen, 1969; and Mehrabian, 1970). At present the search for additional verbal and nonverbal categories of social interaction requires some systematization of the cues already identified. To do so, a variety of situations can be defined experimentally, and subjects' interactions can be scored on many of the measures that have been developed. Factor analyses of such data should help identify primary dimensions of interpersonal behavior, provided such factors are cross-validated over a variety of experimental conditions. The obtained factors would aid in the development of a framework which facilitates further search for behavioral cues that are an important

part of social interaction and that can be reliably scored. Further, they would constitute the dependent variables in experimental studies.

One such factor is expected to relate to Bales' (1950) measure of "positive interpersonal acts," and to receive positive loadings from a variety of nonverbal cues (e.g., eye contact, positive facial expression, gesture rate) and positive verbal cues (e.g., verbal reinforcers). This factor is expected to correlate with, for instance, liking of the other, self-other similarity (Byrne, 1969; Mehrabian, 1970), and subjects' affiliative tendency (Mehrabian and Ksionzky, 1970). In addition to positive interpersonal acts, the factors of potency (or status) and activity level (or responsiveness) are expected to contribute to the definition of interpersonal behavior (Mehrabian, 1970; Osgood, Suci and Tannenbaum, 1957).

The value of any factors which are identified for characterizing interpersonal behavior would depend on their generality. If the identified factors are indeed general, at least a subset of them should emerge in various experimental conditions (e.g., tasks). If they meet this criterion of generality, the factors would provide a means for differentiating productive and "healthy" interpersonal exchanges from ineffective or harmful ones. For instance, of considerable interest to educators might be the identification of those behaviors which elicit cooperation, or are associated with accurate communication (Mehrabian and Reed, 1968). The study of either of these issues would lead to further exploration of social

reinforcers (a special subset of positive interpersonal acts) and some of the subtleties of the social reinforcement process. For instance, why do some therapists deny being directive while nonverbally and systematically reinforcing their client's behavior? Or why do people in their everyday transactions sometimes use a simultaneous mix of positive and negative interpersonal acts (as in sarcasm, where the verbal component is positive and the nonverbal one is negative)?

At this point in the development of the field, there is considerable need for studies which cast a broad net in an attempt to provide composite measures (based on several behavioral cues) of interpersonal behavior, or in the search of relationships between these and experimental factors. Such approaches are exemplified by Osgood, Suci and Tannenbaum's (1957) semantic space which is equally applicable to the description of interpersonal phenomena, or by Byrne's (1969) well-documented principle of similarity-attraction. Also, systematic observations of small group interactions would seem to have priority over verbal reports obtained before or after such interaction, or simulated (e.g., computer simulated) studies of these phenomena.

Monographic reports which integrate several experiments would seem especially useful in these introductory phases of search for relationships, since they highlight both consistencies and inconsistencies in findings, for the investigator as well as for his reader. This approach to the reporting of data seems especially appropriate, since isolated reporting of significant effects is both inefficient and has unnecessarily complicated the meaningful integration of available findings.

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6400 - Environmental Effects on Interpersonal Behavior

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The paradox of psychology's relative neglect of the role of environmental influences on behavior in view of its emphasis on environmental determination of behavior has been noted recently by Wohlwill (1970). The result of this "neglect" is reflected in the almost total absence of systematic knowledge concerning the effects of environmental factors on interpersonal behavior. On the one hand, the development of research approaches leading to investigations of the effects of auditory, visual, olfactory, thermal, and kinesthetic environmental stimuli on interpersonal behaviors is sorely needed. On the other hand, progress in the study of such stimuli can be anticipated only to the extent that advances in the classification and measurement of interpersonal behavioral responses occur. Finally, a framework within which to conceptualize the potential environmental stimulus - interpersonal response relationships is needed to guide cumulative research efforts.

Initially, of course, the "interpersonal behavioral responses" of interest must be specified and operationalized. For example, the works of Byrne (in press) and associates concerning interpersonal attraction and Berkowitz (1970) with respect to aggression represent systematic attempts to specify and elaborate the elements of two somewhat independent interpersonal behaviors. Further development leading to refined observation and measurement of interpersonal behaviors such as communication, cooperation-competition,

etc. is clearly necessary if progress in determining the influence of environmental variables on interpersonal behavior is to occur.

While few would disagree with the conviction that auditory, visual, olfactory, kinesthetic, and thermal environmental stimuli influence interpersonal behaviors, systematic research concerning such stimulus effects is definitely scarce. Correlational studies (Hall, 1966) provide numerous leads and suggestions concerning the potential influence of such variables but experimental investigations are needed to verify and specify the critical variables and dimensions involved. Recent work concerning the influence of thermal stimuli on interpersonal attraction (Griffitt, 1970; Griffitt & Veitch, in press) and aggression (Baron, 1970) and population density on attraction (Griffitt & Veitch, in press) demonstrates the utility of an experimental approach in the study of environmental stimulus effects. What elements (if any) of auditory stimuli (intensity, pitch, complexity, "noise"), visual stimuli (aesthetic factors, etc), olfactory stimuli (smoke, smog, etc.), kinesthetic stimuli (vibration personal physical contact), and thermal stimuli influence interpersonal behaviors? Experimental laboratory investigations in which stimulus elements may be isolated and manipulated will be essential in the study of the short term effects of such stimuli. The long term effects of exposure to such stimuli may perhaps be more readily studied correlationally through the investigation of naturally occurring situations.

In addition to direct influences on interpersonal behaviors, environmental factors may also influence interpersonal behaviors

somewhat indirectly. Investigations of the extent to which environment influences residential choices, migrations, and vacationing patterns and, thus, the termination of old and the initiation of new interpersonal relationships are needed. Individual differences in attitudes toward and response to environmental conditions may be expected to influence friendship choices and other interpersonal behaviors.

Random fact-gathering rarely leads to empirical or theoretical progress. To obtain comparable and cumulative findings, the utility of tentative frameworks within which to conceptualize environment-interpersonal behavior relationships should be explored. For example, recent writers (Griffitt, 1970; Griffitt & Veitch, in press; Wohlwill, 1970) have conceptualized the influences of environmental stimuli on interpersonal behaviors in an affective framework. To the extent that environmental variables elicit positive or negative affective responses in subjects, the affective valence of interpersonal behaviors is expected to be influenced, appropriately, positively or negatively. The utility of any conceptual framework, of course, will be established only by empirical investigation.

In summary, few established environment-interpersonal behavior relationships are to be found in the literature and, considering the "obvious" importance of environmental determination of behavior, extensive research efforts are needed. While the methodological and conceptual problems are formidable, progress may be anticipated to the extent that systematic efforts are initiated.

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APPENDIX

Outline for PEM Study Adopted for Planning Purposes

(Detailed changes have been made by Task Groups at the discretion of group members.)

1000. PEM Aspects of Child Development

1100. Special Problems in Infancy and Early Childhood (birth to 5 years)

1101. Group care
- 1. Effects of orphanage rearing, multiple mothering vs one-to-one mother-child (or surrogate mother) relations
- 2. Related effects of environmental complexity

1102. Separation anxiety: fear of the strange

1103. Readiness
- 1. General concept
- 2. Special application to disadvantaged children

1104. Forced training ("pushing")
- 1. In relation to "natural" intellectual limits
- 2. In relation to readiness

1105. Sequential organization of learning
- 1. In infancy
- 2. In early childhood

1106. Parental involvement and influence on early development
- 1. Effects of home environment, of implicit theories and practices of parents
- 2. Manipulation of parental beliefs and practices, in enrichment programs

1107. Modes of learning and experience that affect early behavioral development
- 1. Differential effects on anatomical maturation and behavioral development
- 2. Correspondence between rates of anatomical and behavioral development
- 3. Effects of environmental (experiential) enrichment and impoverishment, and cumulative effects with increasingly complex circumstances
- 4. Hierarchical conceptions of intellectual development (Piaget)
- 5. Development of learning sets and their implications for intellectual, motivational, and personality development; resistance of resultant behaviors to extinction
- 6. Critical periods

1200. Child Socialization

1201. Conceptualization of the socialization process
- 1. Socialization pressures
- 2. Learning paradigms: e.g., dependency relations and adult control of "effects" (reinforcement), reference group formation

1202. Internalization of beliefs and values
    1. Conceptualization of attitude, belief, and value systems
    2. Identification processes
    3. Impulse control (self control)
    4. Effects of environmental resources
1203. Cognitive socialization
    1. Psycholinguistic structures, language development: effects on thought, beliefs, attitudes, interests; patterns of expression, values
    2. Uncertainty and information-seeking
    3. Development of expectancies; category accessibility; assimilation; effects on perception, cognition, action
    4. Symbolism, symbolic behavior

1300. Personality Development
1301. Developmental theories (Freud, Erikson, Piaget, Sears)
1302. Developmental sequences, stages
    1. Critical periods
    2. Fluid and crystallized patterns of intelligence (Cattell)
1303. Development of self-identity
    1. Self concept, ego theories, self theories
    2. Relations to social class, racial-ethnic factors, region, sex, family characteristics
1304. Effects of age, sex, culture, and other environmental factors
1305. Development of mechanisms of coping and adaptation

1400. Behavior Change
1401. Personality, learning
1402. Susceptibility to change of personality traits, attitudes, interests, beliefs, values
1403. Measurement of change
1404. Genetic, maturation, and learning factors in physical and psychological growth

2000. Personality

2100. Conceptual and Theoretical Approaches
2101. Criteria for a viable theory
2102. Development of unified, integrated theoretical formulations
    1. Cross-level comparisons and correlations
    2. Developmental histories of stable traits
    3. Relations among trait patterns at various developmental levels
    4. Relations of traits to perceptual responses in person perception and interpersonal interaction

2200. Cognitive Conceptions

2201. Cognitive style, complexity
2202. Balance theories
2203. Cybernetic formulations
    1. Computer simulation of personality
    2. Mathematical models

2300. Developmental Approaches (see 1300)

2400. Dynamic Approaches (see 1303, 4000)

2500. Morphologic Approaches

2600. Physiologic, Psychophysiological, and Biochemical Approaches (see 2102.1)

2700. Trait Structure, Multivariate Approach - Taxonomy of Trait-Explanatory Concepts of Stylistic and Temperament Aspects of Personality
2701. Methodological problems: definition of universes of behaviors for self-report, observation-rating, and objective test studies, cross-media matching of stable structures, design paradigms, including multi-modality designs and trait x treatment designs; construct validation of traits; effects of age, sex, sample, culture, and other environmental effects, and relations of these to resulting trait patterns; the range of roles and sets in relation to diversity of response patterns obtained (social desirability, acquiescence, and other specific sets), their similarities in terms of effects on self-description, and the relations of traits to moderator variables representing such sets
2702. Observational, rating methods: rater and "ratee" sources of effects in peer and "other" ratings, in observational trait assessment, and in interpersonal interaction; explicit concern with task, stimulus presentation, response format, socio-environmental setting, and demographic characteristics of participants; conceptual and empirical relationships among similar and related trait descriptors within observational-rating subdomain and in other subdomains (self-report)
2703. Self-report methods: item pools; format; item vs cluster factorization; measurement of and correction for response bias or distortion; development of a unified, consistent conceptual framework for concepts of personality style and temperament
2704. Objective test, misperceptive, indirect assessment, and development of fresh, new approaches to personality measurement and description

2800. Creativity
2801. Conceptualization of creativity; relations to intelligence, personality factors

2802. Characteristics of the creative person
2803. Analysis of the creative process
2804. Characteristics of the creative product
2805. Characteristics of the creative situation, short- and long-term; situational factors contributing to creative performance
2806. Measurement of creativity

3000. Emotions

3100. State Patterns: Physiological, Cognitive, Behavioral
3101. Arousal stimuli
3102. Response dimensions
3103. Uniqueness
3104. Learned-unlearned dimensions
3105. Affective learning; autonomic and physiological learning

3200. Relations to Traits, Roles

3300. Moderation of Expression by Learning
1. Culture patterns
2. Age, sex, group norms

3400. Drug Effects on Emotional Patterns

3500. Differentiation of States, Reflecting Situational, Organismic, and Stimulus Variations, from Traits, Represented as Long-Term Individual Dispositions

3600. Arousal States: Adrenergic Response, Stress

3700. Dysphoric States: Anxiety, Depression, Guilt, Shame, Remorse (see 4300)

3800. Duphoric States: Happiness, Elation, Joy, Hope, Confidence

4000. Motivation

4100. Conceptualization and Theory (human motivation)
4101. Homeostatic systems, physiological need
4102. Need-press system (Murray), subsystems (n Ach)
4103. Dynamic systems (Freud, Cattell)
4104. Cognitive and cybernetic approaches: motivation inherent in information-processing functions (Hunt), cognitive dissonance theory, incongruity, collative variables (Berlyne), balance theories, exchange theory
4105. Motivation inherent in individual performance, competence motivation (White)
4106. Trait systems and patterns (Guilford, Cattell)
4107. Values systems, moral character
4108. Conceptualization of interest, attitude, need, belief, value, ideal

4200. Process and Trait Formulations
4201. Relations and differences in conception and approach
4202. Process theories and formulations
  1. Balance theories
  2. Exchange theory
4203. Trait formulations: motives, values, character traits
  1. Methodology of measurement: Strong paradigm, Thurstone scales, Likert scales, Cattell's and Campbell's indirect approaches: self-report, objective, misperception, observation, rating, content analysis, unobtrusive measures
  2. Analytic approaches: factor analysis, multidimensional scaling, profile clustering
  3. Factored patterns of sentiments, attitudes, interests, beliefs, values
  4. Variations related to age, sex, sample, culture, and other environmental factors

4300. Frustration, Stress, and Anxiety
4301. Frustration theory and research evidence
4302. Conceptualization of stress
  1. Relation to frustration (Selye)
  2. Utility of stress concept in interpretation of behavior
  3. Relationships among physiological and psychological aspects
  4. Stress and coping, adaptation
4303. Adaptation-Level Theory (Helson) (see 5100)

4400. Conflict
4401. Conceptualization of conflict (Miller, Murphy, Cattell)
  1. Types of conflict: role, value, internal
  2. Approach and avoidance relations
4402. Conflict measurement and calculus
4403. Conflict in relation to interpretation and prediction of action

4500. Interests and Vocational Guidance
4501. Incremental value of interest measurement over ability and aptitude measures in predictions of various criteria on various populations (Thorndike, 10,000 Occupations; Clark, Minnesota study)

5000. Environmental Variables

5100. Conceptualization of Environmental Variables and Their Effects on Behavior; Human Ecology

5200. Methodologies for Encoding Environmental Factors

5300. Taxonomic Systems of Environmental Variables

5400. Normative Studies of Selected Behaviors in Relation to Defined Patterns of Environmental Setting: Sampling Problems in Relation to Populations, Behaviors, Macro- and Micro-Environmental Settings

6000. Interpersonal Behavior Processes

6100. Group Theory, Role Theory, Interpersonal Settings

6200. Interpersonal Perception, Attraction, Influence; Social Acuity, Empathy

7000. Variations in Psychological Processes

7100. Paradigms for such Research, Taking Account of Persons, Tasks, Environmental Settings, and Occasions (Cattell covariation chart, Campbell-Fiske model, longitudinal replication)

7200. Paradigmatic Studies of Selected Learning, Motivation, Perception, and Other Psychological Processes to Investigate Variations Attributable to Shifts in Subject, Task, Setting, and Occasion Dimensions

7201. Analyses to estimate magnitudes of variance components in standard dependent variables accounted for by trait, treatment, and trait by treatment sources and their specific constituents

7202. Analysis of total interaction parameter estimates into principal components or other dimensions in order to compare results by such methods with conventional R, P, Q analysis, both with single dependent variables and vectors (multiple dependent variables)